ABSTRACT: The present work investigates this covariance in approximation
to ε which is due to the approximate satisfaction of the con-
ditions of absolute covariance. A combined automatically con-
trolled system, the structural scheme of which is illustrated
by a drawing, is investigated.
$x(t)$ and $x_{cov}(t)$ denote the processes which are due to a dis-
turbance $f(t)$ in an automatically controllable system in the
case of a control based on the system of deviation and/or on
the system of deviation and disturbance respectively:

$$x(t) = L^{-1}\left\{ (N_1 / \triangle N) f(s) \right\}, \quad x_{cov}(t) = L^{-}\left\{ ((N_1 - N_2)/\triangle N) \right\} f(s) .$$

Here $\triangle N$ denotes the characteristic polynomial of the systems,
N_1 and N_2 the corresponding polynomials with the order k and l,
L - the LAPLACE-like representation of the inverse trans-
formation, $f(s)$ - the LAPLACE-like representation of the dis-
turbance $f(t)$: it applies that $N_1 = b_0 + b_1 s + b_2 s^2 + \ldots + b_k s^k$

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The Covariance in Approximation to   in Linear, Combined, Automatically Controlled Systems. (Russian)

and $N_2 = \bar{a}_0 + \bar{a}_1 s + \bar{a}_2 s + \ldots + \bar{a}_1 s^1$. Similar to the conditions of absolute covariance, the dependence of the minimizing of $x_{cov}(t)$ on the coefficients $\bar{a}_i$ or $a_i = b_i - \bar{a}_i$ (b_i is assumed) must be determined. By using the theorem concerning the behavior of the functions with respect to the expression $x_{cov}(t)$ the following correlation is found between the processes in the case of control according to the principle of deflection and according to the principle of deflection and disturbance: $x_{cov}(t) = \int_0^t \oint (\tau) x(t - \tau) d\tau$. This correlation is written down also in a different form. The coefficients occurring in this connection are computed immediately from the parameters of the open and of the closed cycle of the system. In the case of the combined systems for automatic control these coefficients characterize the measure of covariance of these systems. Several peculiarities of the various systems are individually mentioned.

Next, the covariance in approximation to $\mathcal{E}$ of the linear

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The Covariance in Approximation to   in Linear, Combined,
Automatically Controlled Systems. (Russian)

systems investigated here are studied within a finite inter-
val of time t $(0 < t < t_1)$. The "pulse function" of the system
can be represented in form of a polynomial with respect to t

without a free term: $k(t) = \sum_{n=1}^{\infty} \alpha_n t^n$. The definite expression

for $x_{oov}(t)$ is explicitly given and developed in series
according to t.
The conditions of covariance in approximation to ξ characterize
the measure of undisturbedness of the system in dependence on
the efficiency of coupling and the sufficiently small number
of necessary effects. The conditions found here extend the range
of applicability of the ideas of covariance in combined systems
for automatic control.

ASSOCIATION: Not given
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SUBMITTED:
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ULANOV, G. M.

ABSTRACT: The present work deals with the similarity of sliding,
             vibrational, and optimum kinds of operation in servomechan-
             isms. It is shown that with the aid of these modes of operation
             the optimum kind of motion of servomechanisms can be realized.
             By vibration-like behavior of the servomechanism its motion
             in the case of the presence of a vebration contour with con-
             trol mechanism (relay) is here understood. By instantaneous
             kind of operation an instantaneous transition process is under-
             stood, which, under existing circumstances, develope within
             the shortest possible time. The similarity between these three
             kinds of operation consists in a nearly periodic motion of
             the relay with a frequenca depending on the parameters of the
             servomechanism. Also the shape of couplings and the intensity
             of disturbances (detuning) plays a part.

             A drawing illustrates the structural schemata of the system of
             automatc control for the classical problem as well as the

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The Similarity of Sliding, vibrational, and optimum conditions
of Motion in Servomechanisms.

structural schemata of a servomechanism with velocity-depend-
ent and firm back-coupling and of a servomechanism with two
kinds of oscillatory circuits. The oscillation equations of
the various schematas are given.

Some conclusions:

1) In the case of an indefinite relay function ϕ the system
continuous to move in accordance with a certain diviation from
the band, which, however, never exceeds the limit of the path,
further within the band $F = \sigma_i$ with variable decreasing fre-
quency of the switching device. The steady state of the system
is a process of self-oscillation.

2) In the case of definite characteristic ϕ the system also moves
further in accordance with a certain deviation along the switch-
ing-over line $F = 0$. If ϕ is the function of a linear argument,
the motion of the system is linearized within the domain along
the switching-over line. Its phase-trajectory is then a straight
line determined by argument F, and the order of the equations
describing the system is diminished by at least 1.

3) In the case of a nonlinear argument ϕ , in which case
$F(y,x) = \psi_1(y,x)$ with $\psi_1(0,0) = 0$ applies, the slizing manner

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The Similarity of Sliding, Vibrational, and Optimum Conditions
of Motion in Servomechanisms.

may therefore be considered to be a limiting- and special
case of the sliding operation with the switching-over fre-
quency of zero. Therefore optimum processes can be realized
with a definite degree of accuracy by a corresponding selection
ot the parameters of the servomechanisms.
(3 illustrations).

ASSOCIATION: Not given
PRESENTED BY: SOBOLEV,S.L., Member of the Academy.
SUBMITTED:
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Card 3/3

ULAN- , ь. И.

ABSTRACT: The present work computes the accumulated deflections of compound
             functions of a regulatable quantity on the assumption that the
             disturbance $f(t)$ is restricted with respect to the modulus or that
             the modulus of any disturbance is restricted. Furthermore, a graphical
             analytical method for the construction of the diagram of the accu-
             mulation of deflections is worked out. The steady linear system of
             automatic control may be described by the following equation:

             $\phi(s) L\{x(t)\} = g(s) L\{f(t)\}$. Here $\phi(s)$ and $g(s)$ denote polynomials with
             respect to s (s denotes the Laplace operator), $L\{x(t)\}$ and $L\{f(t)\}$ –
             Laplace transformations of $x(t)$ and $f(t)$ respectively.
             The author examines the problem of the accumulation of functions
             of a regulatable quantity of the type

             $$X(t) = a_0 x(t) + a_1 \dot{x}(t) + \ldots + a_k \overset{k}{x}(t) + b_0 \int_0^t x(t)dt + \ldots + \int_0^t \underset{r}{\ldots} \int_0^t x dt,$$
             $$k < m - n$$

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On a Generalization of the Deflection Accumulation   PA - 2646
Theory and its Use for Determining Autooscillations in Generators

for the case in which a disturbance $f(t)$ 1 restricted accoring
to the modulus ats upon the system mentioned above. The Laplace
transformation of $X(t)$ is written down. The accumulation of the
function $X(t)$ for the restricted modulus $f(t)$ is determined by
$|f(t - \mathcal{T})| = 1$,   sign $H(t)$ " $\mathrm{sign} f(t - \mathcal{T})$ for the entire time interval
$0 - t$. A formula is also given for the maximum accumulated value
of $X(t)$.

The diagram of the accumulation of deflections $X_{max}(t)$ is easily
constructed on the basis of the "summarized transition function"
$H(t)$ the curve found is in this case monotonous. Next, a common
feature shared by self oscillations and the accumulation process of
deflections in certain generators is shown, and the amplitude and
frequency of the resulting oscillations is determined on the basis
of the analysis of the accumulation process of deflections.

ASSOCIATION: Institute for Automatics and Telemechanics of the Academy of Science
of the U.S.S.R.
PRESENTED BY: S.L.Sobolev, Member of the Academy
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ULANOV, G.M.

28(1)   P. 2   PHASE I BOOK EXPLOITATION   SOV/3317

Moscow. Vyssheye tekhnicheskoye uchilishche. Kafedry "Avtomatika i telemekhanika"

Sistemy avtomaticheskogo regulirovaniya i upravleniya; nekotoryye voprosy teorii i tekhniki (Automatic Regulating and Control Systems; Some Problems in Theory and Technology) Moscow, Mashgiz, 1959. 166 p. (Series: Its Trudy, sbornik no. 97) 7,600 copies printed.

Ed.: V.K. Titov, Candidate of Technical Sciences; Tech. Ed.: Z.I. Chernova; Managing Ed. for Literature on Machine Building and Instrument Making (Mashgiz): N.V. Pokrovskiy, Engineer.

PURPOSE: The book is intended for teachers in schools of higher education, and for engineers and technicians engaged in problems of automation.

COVERAGE: This collection contains articles on the theory and technique of automatic regulation and control. The problems discussed concern calculation of optimum parameters of low-power servomechanisms, correction of a-c systems and systems of automatic regulation with a delay unit, and the construction of self-adjusting a-c systems. Several methods of improving the dynamic properties of servomechanisms, and methods of approximate investigation of pulse servo-

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mechanisms, are also explained. Some considerations regarding possible ways of automating butt welding in a random direction are presented. The authors of this collection are all instructors in the department of "Automation and Remote Control" at MVTU imeni Bauman. The articles are based on scientific research work conducted by the department during the last five years. Some personalities are mentioned in each article. References are given after each article.

TABLE OF CONTENTS:

According to the author, the theory of invariancy constitutes the basis of the theory of combined automatic systems which depend on two principles:
1) regulation and control as a function of deviation;
2) regulation and control as a function of load. Mathematical problems of invariancy were developed in the Soviet Union by N.N. Luzin and P.I. Kuznetsov in 1945-1946. In 1948 Academician V.S. Kulebakin established conditions of invariancy with an accuracy up to the free component. Professors A.G. Ivakhnenko,

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Automatic Regulating and Control (Cont.)   SOV/3317

A.J. Kukhtenko and other Ukrainian scientists contributed much to the advancement of the theory and methods of developing combined systems of automatic regulation and control. A tendency to unite the problems of combined systems and of self-adjusting systems appears in the works of V.V. Solodovnikov and A.M. Batkov (1956). The author summarizes the basic ideas of the Soviet scientists on the above problems.

Bibliography   14

Shramko, L.S., Candidate of Technical Sciences. Problem of Self-adjusting Systems   15
The author investigates some a-c systems which develop an error signal of the type $U_\epsilon(t) \cos\omega_0 t$. This signal, amplified and converted accordingly, is used for the control of certain actuating units (frequently, two-phase induction motors). There are two ways of converting this error signal:
1) with demodulation preceding the conversion of the a-c signal;
2) without intermediate demodulation
The author considers systems of the second type the more advantageous because of the absence of additional demodulating and modulating devices.

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Automatic Regulating and Control (Cont.)   SOV/3317

He analyzes these systems, describes certain difficulties in their operation
(e.g., those due to variations in frequency of the power supply), and con-
cludes that further research on self-adjusting a-c systems should provide
useful material for solving the general problem of self-adjusting systems.

Bibliography   22

Karabanov, V.A., Candidate of Technical Sciences. Calculation of Optimum
Parameters of Low-Capacity Servosystems With a Given Block Diagram   23

Bibliography   29

Plotnikov, V.N., Candidate of Technical Sciences. Improving the Dynamic
Properties of High-speed A-C Servosystems   30

Bibliography   51
    The authors of the two above articles present: 1) a calculation of
    optimum low-capacity servosystems with a given block diagram; 2) Some
    methods for improving the dynamic properties of high-speed a-c servo-
    systems. They recommend reduction of the electromechanical time con-
    stant of the motor for the period of the system reaction by increasing
    the gain factor of the amplifier in the saturation zone. They also

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recommend the use of a two-channel control system for the drive (along the control and excitation windings).

Kavun, Ye.S., Candidate of Technical Sciences. Correcting Devices of A-C
Servosystems   52
   The author investigates electromechanical correcting devices which
   in practical operation are insensitive to changes in carrier frequency,
   do not require additional demodulators and modulators, and provide
   the necessary stabilizing effect.

Bibliography   67

Kavun, Ye.S., Candidate of Technical Sciences. Design and Construction of
an Electromechanical Correcting Device   68
   The author outlines the sequence of calculations, discusses the
   selection of the basic components of the correcting device and
   describes their construction.

Bibliography   84

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Automatic Regulating and Control (Cont.)   SOV/3317

Guzenko, A.I., Candidate of Technical Sciences. Designing Single-cycle
Magnetic Power Amplifiers   85
    This article presents a further development of the methods of
    calculating parameters of magnetic amplifiers containing an
    external feedback and a bias circuit which were suggested in the
    two articles given as references. The author presents a practical
    method of designing a single-cycle magnetic amplifier with a
    bias and an external feedback assembled from three-rod and toroidal
    cores.

Bibliography   96

Pyatin, Yu.M., Candidate of Technical Sciences. Rational Selection of
Parameters of Measuring Bridge Circuits   97
    The author demonstrates that matching of bridge parameters with the
    resistance of the data unit of a Wheatstone measuring bridge system
    results in a relative and not an absolute power maximum in the
    measuring device. By this he also shows that K.B. Karandeyev's
    conclusion (Ref.1) on the inconsistency of Heaviside's optimum
    conditions is erroneous. The author states that his findings apply
    to any electric circuit.

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Automatic Regulating and Control (Cont.)   SOV/3317

Pyatin, Yu.M., Candidate of Technical Sciences. Contact Devices of
Automatic Systems
    According to its author, the object of this article is the systematized   105
    presentation of all information essential for correct selection of
    the contact system, with consideration for its operating conditions.
    According to the editor of this collection, this particular article
    may be of use to students of schools of higher education. There
    are 9 tables of specifications.

Bibliography

L'vov, N.S., Engineer. Automation of Butt Welding in Random Direction   150
    The author reports on recent developments in the automation of weld-
    ing processes which attempt to increase the productivity and economy
    of these processes, with simultaneous improvement of the quality of
    the welded seam. A review of existing methods of controlling the
    position of the welding device and basic considerations on the de-
    sign of automatic welding machines are presented. Some alternative
    designs of automatic welding machines based on the use of servo-
    mechanisms are discussed.

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                                                                4-8-60

ULANOV, G-M.

FILM I BOOK EXPLOITATION   SOV/4326

Razrabotka po teorii invariantnosti i yeyo primeneniye v avtomaticheskikh ustroystvakh trudy
soveshchaniya (Theory of Invariance and Its Application to Automatic Devices;
Transactions of the Conference Oct. 16-20, 1958) Moscow, 1959. 381 p. No. of
copies printed not given.

Sponsoring Agency: Akademiya nauk Ukrainskoy SSR. Otdeleniye tekhnicheskikh nauk.

Resp. Ed.: V.S. Kulebakin, Academician; Editorial Committee: V.A. Bodner, Doctor
of Technical Sciences, A.D. Ivakhnenko, Doctor of Technical Sciences, A.Ya. Lerner, Can-
didate, Academician, Academy of Sciences UkrSSR, I.A. Lachenko, Candidate of
Technical Sciences, P.I. Kuznetsov, Doctor of Physics and Mathematics, A.I. Kukh-
tenko, Doctor of Technical Sciences, B.N. Petrov, Corresponding Member, Academy
of Sciences USSR, Ye.P. Popov, Doctor of Technical Sciences, G.M. Ulanov, Doctor
of Technical Sciences, Ch.I. Drozdov, Academician, Academy of Sciences UkrSSR,
V.I. Chinayev, Candidate of Technical Sciences, and N.N. Chumakov, Candidate of
Technical Sciences; Tech. Ed.: G.V. Kruglov.

PURPOSE: This collection of papers is intended for engineers and other specialists
working in various fields of automation.

COVERAGE: The collection includes reports and papers presented at the Conference
on the Theory of Invariance and its Application to Automatic Devices, which
was called by the Otdeleniye tekhnicheskikh nauk (Department of Technical Sci-
ences) of the Institut elektrotekhniki (Institute of Electrical Engineering)
of the Academy of Sciences of the Ukraine and convened in Kiyev October 16 -
20, 1958. The papers presented are concerned with high-quality automatic con-
trol systems designed to maintain the invariance of the quality to be regulated with re-
spect to the disturbances acting on the system. The reports treat the physical
essence of maintaining the invariance of the quality in automatic control systems, they
also consider mathematical formulations of invariance in automatic control systems and prob-
lems connected with specific cases of practical applications of compensation
in various automatic systems. On the basis of these reports it was established
by the Conference that, by utilization of the conditions of compensation and the
principle of invariance, it is possible to produce automatic systems and various
arrangements which are near perfect from the viewpoint of quality of the regu-
lation and control process, stability, simplicity of construction, and reliabil-
ity of operation. The following members of the Kiyev Seminar on Automatic Con-
trol are mentioned as organizers of the conference: A.I. Kukhtenko, A.G. Ivakh-
nenko, B.N. Kotlyar, G.M. Kryukovorskiy, N.N. Chumakov, I.A. Lachenko, and
B.I. Chmayev.   References accompany each article.

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Ye.S., kand.tekhn.nauk; KOGAN, B.Ya., kand.tekhn.nauk; KOPAY-GORA,
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              (Electronic calculating machines)

WIANOV G.M.

Elementy sistem avtomaticheskogo regulirovaniya, ch. 1; Chastitel'nyye uatilitel'nyye i izpolnitel'nyye elementy (Elements of Automatic Control Systems, pt. 1: Sensing, Amplifying and Control Elements) Moscow, Mashgiz, 1959. 722 p. (Series: Osnovy avtomaticheskogo regulirovaniya, t 2) Errata slip inserted. 13,000 copies printed.

Reviewers: P. P. Galteyev, Candidate of Technical Sciences, V. L. Lvazev, Doctor of Technical Sciences, P. P. Klobukov, Candidate of Technical Sciences, V. V. Petrov, Candidate of Technical Sciences, Yu. D. Ragozin, Candidate of Technical Sciences; Yu. R. Margolid, Engineer, B. A. Rybov, Doctor of Technical Sciences, B.D. Sadovskiy, Candidate of Technical Sciences, A. G. Saybel' Candidate of Technical Sciences, and A. A. Sheryakov, Candidate of Technical Sciences; Scientific Eds.: I. M. Vitenberg, Candidate of Technical Sciences, A. L. Moldaver, Candidate of Technical Sciences, and Yu. Ye. Russkiy, Candidate of Technical Sciences; M. of Series: V. V. Solodovnikov, Doctor of Technical Sciences, Professor; Eds. of Publishing House: G. P. Polyakov and T. F. Sokolova; Managing Ed. for Literature on Machine Building and Instrument Construction (Mashgiz): N. V. Pokrovskiy, Engineer.

PURPOSE: This book is intended for engineering and scientific personnel and for instructors of vuzes concerned with problems of automatic control.

COVERAGE: The authors explain the principle of operation of automatic control elements and servomechanisms. They also discuss typical automatic control circuits and present equations of motion and static and dynamic characteristics of automatic control elements. They describe sensing elements, amplifiers, control elements and transducers. The book contains Sections I, II, and III of Part 1, Volume II. "Principles of Automatic Control." The following persons participated in writing the present work: P. A. Braslavskiy, Candidate of Technical Sciences, paragraph 4 of Chapter III and paragraphs 1-8 and 14 of Chapter IV, L. S. Gol'dfarb, Doctor of Technical Sciences, paragraphs 1, 2, 5 and 7 of Chapter I; A. L. Gusenko, Candidate of Technical Sciences, paragraph 1 of Chapter VIII; K. Ye. Dmitriyev, Candidate of Technical Sciences, paragraph 2 of Chapter XIII; V. A. Kalashnikov, Engineer, Chapter XIV; P. P. Klobukov, Candidate of Technical Sciences, paragraphs 2 and 3 of Chapter VIII; P. P. Klobukin, Candidate of Technical Sciences, Chapter XII; I. M. Lvazev, Candidate of Technical Sciences, paragraph 1 of Chapter VIII, and Chapter XIV; D. S. Pel'por, Doctor of Technical Sciences, paragraphs 1-3of Chapter XII, V. V. Petrov, Candidate of Technical Sciences, paragraph 1 of Chapter XIII; M. A. Rozenblat, Doctor of Technical Sciences, Chapter VII; Yu. Ye. Russkiy, Candidate of Technical Sciences, paragraphs 1, 35 and 8-10 of Chapter I, paragraphs 2-5, 12, 13 and 17 of Chapter II, paragraph 3 of Chapter XIII, and Chapter II; B. D. Sadovskiy, Candidate of Technical Sciences, paragraphs 1 of Chapter X; A. A. Sokolov, Candidate of Technical Sciences, Chapter VI; I. L. Tsuov, Candidate of Technical Sciences, paragraphs 9-13 of Chapter IV, paragraph 4 of Chapter X, and Chapter XI; G. M. Ulanov, Candidate of Technical Sciences, paragraph 1 of Chapter II; Ya. V. Milipchuk, Candidate of Technical Sciences, paragraphs 6-11, 14-16 and 18-29 of Chapter III; A. Ye. Sheryklu, Candidate of Technical Sciences, Chapter V; and V. I. Dobkdov, Candidate of Technical Sciences, paragraph 1 of Chapter IV and paragraph 1 of Chapter XIII. References appear at the end of each chapter.

ULANOV, G.M.

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for determination of dynamic characteristics of automatic control
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S/020/62/144/006/006/015
B108/B102

AUTHOR: Ulanov, G. M.

TITLE: Optimization of automatic control systems and theory of K(D) representation

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 144, no. 6, 1962, 1249-1250

TEXT: The optimization of automatic control systems, i.e., the finding of a function ϕ_{opt} involving minimum difference between the desired and achieved values of the state of the system is considered. It is shown that such an optimum system (N. Wiener, Extrapolation, Interpolation and Smoothing of Stationary Time Series, N. Y. - London, 1949) can be got by imposing the condition of K(D) representation, $\phi_{opt}(D)f(t) = 0$ with $\bar{\phi}_{opt} \neq 0$ and $f(t) \neq 0$ ($f(t)$ - perturbation). This representation was introduced by V. S. Kulebakin (UMN, 6, no. 5, 211 (1951); DAN, 68, no. 5 (1949); 77, no. 2 (1951)).

Card 1/2

Optimization of automatic control...

S/020/62/144/006/006/015
B108/B102

PRESENTED: January 16, 1962, by A. Yu. Ishlinskiy, Academician

SUBMITTED: December 25, 1961

Card 2/2

PETROV, B. N.; ULANOV, G. M. ; YEMEL'YANOV, S. V.

"Invariancy and Optimization in Automatic Systems
with Nonflexible and Variable Structure.

Paper to be presented at the IFAC Congress held in
Basel, Switzerland, 27 Aug to 4 Sep 63

AUTHORS: Kochubiyevskiy, I. D., Ulanov, G. M.

TITLE: Information conditions for the invariance of linear
             automatic control systems

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 148, no. 6, 1963, 1268-1270

TEXT: This paper is an attempt to reduce information theory and the
theory of statistical optimization to the determination of invariance
conditions. An automatic control system (ACS) is symbolized by the
following graph:

$$\xi_x (x,t) \longrightarrow \boxed{ACS} \quad \xi(f,t) \quad \xi_{x'}' (x',t) \longrightarrow$$

For such a system the equation of information reads

Card 1/2

Information conditions for the ...

$$\mathcal{H}_2'(\xi') = \mathcal{H}_1'(\xi) + \frac{1}{2W} \int \log|\Phi(j\omega)|^2 d\omega. \tag{2}$$

Some consequences are derived from the condition of absolute invariance.
In particular, it is shown that each Wiener optimum system can be
determined by means of the theory of invariance. There is 1 figure.

PRESENTED: July 23, 1962, by B. N. Petrov, Academician

SUBMITTED: July 1, 1962

Card 2/2

ULANOV, G. M.

"Sur le calcul des champs potentiels par les machines electroniques."

report submitted for 4th Intl Cong, Cybernetics, Namur, Belgium, 21-25 Oct 64.

KULEBAKIN, V.S;, akademik, otv. red.; PETROV, B.N., akademik, otv.
red.; BODNER, V.A., doktor tekhn. nauk, red.; VORONOV,
A.A., doktor tekhn. nauk, red.; IVAKHNENKO, A.G., red.;
ISHLINSKIY, A.Yu., akademik, red.; KOSTYUK, O.M., kand.
tekhn. nauk, red.; KRASSOV, I.M., kand. tekhn. nauk, red.;
KUNTSEVICH, V.M., kand. tekhn. nauk, red.; KUKHTENKO,A.I.,
red.; RYABOV, B.A., doktor tekhn. nauk, red.; SIMONOV,
N.I., doktor fiz.-mat. nauk, red.; ULANOV, G.M., doktor
tekhn. nauk, red.; FEDOROV, S.M., kand. tekhn. nauk, red.;
TSYPKIN, Ya.Z., doktor tekhn. nauk, red.; CHINAYEV, P.I.,
kand. tekhn. nauk, red.; KRUTOVA, I.N., kand. tekhn. nauk,
red.; RUTKOVSKIY, V.Yu., kand. tekhn. nauk, red.

[Invariancy theory in automatic control systems; transac-
tions] Teoriia invariantnosti v sistemakh avtomaticheskogo
upravleniia; trudy. Moskva, Nauka, 1964. 503 p.
                                              (MIRA 18:2)

1. Vsesoyuznoye soveshchaniye po teorii invariantnosti i
yeye primeneniyu v avtomaticheskikh ustroystvakh. 2d,
Kiev, 1962. 2. Chlen-korrespondent AN Ukr.SSR (for
Ivakhnenko, Kukhtenko).

TOPIC TAGS: differential equation, ordinary differential equation. K(D)

$$E(D) \, x(t) = X(D) \, f(t), \qquad (1)$$

ASSOCIATION: None

ACCESSION NR: AT4045309

theory of X(D) image formation
has: 6 figures and 26 numbered formulas.

ASSOCIATION:

SUBMITTED:

KHRAMOY, A.V. [deceased]; MEYEROV, M.V.; AYZERMAN, M.A.; ULANOV, G.M.;
    TSYPKIN, Ya.Z.; FEL'DBAUM, A.A.; LERNER, A.Ya.; PUGACHEV, V.S.;
    IL'IN, V.A.; GAVRILOV, M.A.

    Work of the Institute of Automatic and Remote Control
    on the development of the theory of automatic control during
    1939-1964. Avtom. i telem. 25 no. 6:763-807 Je '64.
                                              (MIRA 17:7)

UNFIVVLAM

L 50185-65 / EWT(d)/EWP(v)/EWP(k)/EWP(h)/EWP(1)   Po-4/Pq-4/Pf-4/Pg-4/Pk-4/
P1-4   IJP(c)   BC
AM5015052   UR/
Book Exploitation

Izvolskiy, E.G.
Ageyev, V. M. (Engineer), and others [EDITORS ?]

Instrument manufacture and automatic control devices; handbook in
five volumes. v. 4: Automatic control and automatic devices
(Priborostroyeniye i sredstva avtomatiki; spravochnik v pyati
tomakh. t. 4: Avtomaticheskoye regulirovaniye i sredstva avtoma-
tiki). Moscow, Izd-vo "Mashinostroyeniye", 1965. 716 p. illus.,
biblio., index. Errata slip inserted. 24,700 copies printed.

TOPIC TAGS: automation, automatic control systems, automatic con-
troller classification, static linearization, designing complex
automation

PURPOSE AND COVERAGE: This is the fourth volume of the handbook:
"Instrument manufacture and automatic control devices." It con-
sists of two parts. Part one presents the fundamentals and defi-
nitions of the theory of automatic control, modern methods of
mathematical analysis and synthesis of linear and nonlinear systems,
and the methods of their dynamic computation. The second part of

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AM5015052

the volume contains descriptions of typical electrically, pneu-
matically, and hydraulically operated controllers, actuating
mechanisms, and control systems. It also gives basic technical
characteristics of electronic computational techniques applied
in automation, and elucidates problems of the organization and
planning of the most widely used systems of automatic control.

TABLE OF CONTENTS [Abridged]:

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L 50185-65
AM5015052

8

Card 3/4

L 50185-65
AM5015052

17. Hydraulic and electrical-hydraulic means of automation and
    auxiliary devices -- 618-645
18. Designing systems for control and automatic regulation
    (A. B. Rodov) -- 645-694

SUB CODE: IE   SUBMITTED: 05Feb65   NO REF SOV: 344

OTHER: 051

Card 4/4

L 25880-66   EWT(d)/EWP(v)/EWP(h)/EWP(k)/EWP(l)

ACC NR: AR6003994   SOURCE CODE: UR/0372/65/000/009/G005/G006

AUTHOR: Petrov, B. N.; Ulanov, G. M.; Yemel'yanov, S. V.

TITLE: Invariance and optimization systems in automatic control with rigid and variable structure

SOURCE: Ref. zh. Kibernetika, Abs. 9G34R

REF SOURCE: Tr. II Mezhdunar. kongressa Mezhdunar. federatsii po avtomat. upr., 1963. (T. 1). Teoriya nepreryvn. avtomat. sistem. M., 1965, 214-228. Diskus., 229

TOPIC TAGS: automatic control theory, optimal automatic control, correlation function, error correction, servomechanism

ABSTRACT: The authors consider the invariance of automatic regulation systems in the presence of perturbations which are specified specifically. The invariance conditions obtained on the bases of K(D) transforms are generalized to include the case of statistically specified perturbations. For stationary automatic control systems and stationary perturbations, the conditions of the K(D) transforms with respect to the perturbation turn out to be equivalent to the condition of K(D) transforms with respect to its correlation function. A new principle is proposed for constructing systems that are invariant with respect to continuous functions of the control signal, and ensure the absence of a statistical error. It is shown that when using an open cycle with variable structure it is possible to duplicate without statistical errors a broad class of functions of control action. The considered combined servomechanisms

Card 1/2   UDC: 62-509

L 25880-66

ACC NR: AR6003994   O

with variable structure of open cycle are not very sensitive to changes within a cer-
tain range of system parameters. Examples of the use of the proposed construction
principle of invariant systems are presented. Eight illustrations. Bibliography of
14 titles. V. M. [Translation of abstract]

SUB CODE: 14, 09

Card 2/2

L 04700-67 ── EWT(d)/FSS-2/EEC(k)-2/EWP(1)── IJP(c)

ACC NR: AP6032581   SOURCE CODE: UR/0030/66/000/009/0108/0109

AUTHOR: Ulanov, G. M. (Doctor of technical sciences)

ORG: none

TITLE: The development of the invariance theory and its applications

SOURCE: AN SSSR. Vestnik, no. 9, 1966, 108-109

TOPIC TAGS: electronic computor, electronic conference, information theory, automatic control theory

ABSTRACT: The Third All-Union Conference on Invariance Theory and its Applications in Automatic Control Systems organized by the USSR and Ukrainian Academies of Sciences, held in Kiev from 31 May to 4 June, was attended by some 500 scientists and engineers from the USSR, East Germany, Hungary, Poland, and Czechoslovakia. Papers were presented in the following sections: a) general problems of invariance theory; b) combined control systems; c) invariance in sampled-data control systems; d) invariance and sensitivity theory, invariant self-adjusting systems; e) nonlinear invariant systems; f) invariance in many-dimensional automatic control systems; g) application of invariance theory to moving objects; and h) industrial applications of invariant systems.

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L 04700-67

ACC NR: AP6032581

The papers that were presented and the discussions showed that signif-icant results were obtained in invariance theory. The methods of in-variance theory were developed for many-dimensional continuous and sampled data systems (with the use of electronic digital computers). The conditions of controllability and observability in control systems were studied. The theory of many-dimensional invariant systems in the presence of random inputs was developed and a series of methods for synthesizing invariant multiloop systems were proposed. Definite progress was made in developing such trends as parametric invariance, sensitivity theory, and statistical dynamics. In particular, principles were developed for systems with double invariance.

The correlation between invariance theory and information theory was detected. The information characteristics of control processes were in-troduced on the basis of concepts of the entropy and recognition of pro-cesses. Invariance conditions in information form were obtained for the basic concepts of control regimes-stabilizing and reproducing, and equations for the compensation balance were derived in the form of entropy. The analogs of information theory were obtained for B. N. Petrov's two-channel principle and its features in common with the Shannon theorem concerning the direct and compensation information channels were indicated.

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L 04700-67

ACC NR: AP6032581   O

    The studies of self-adjusting systems with the aid of the invariance principle as well as of nonlinear invariant systems with a variable structure were extended. The possibility of increasing the accuracy of systems and of improving their dynamic and operational characteristics in the presence of large external disturbances was shown. Studies important to applications were carried out in the invariance theory-of systems with distributed parameters.

    The essential difference between this conference and the previous ones is that an extensive analysis was made of designed and already operating automatic control systems. The effectiveness of the application of invariance principles to industry-wide automation and manufacturing of instruments was demonstrated. Realization of control in compound industrial complexes with the aid of electronic digital computers operating on the basis of compensating the disturbances was considered as an entirely new fact. The economic efficiency and reliability of such complex automation systems were estimated for one specific example (Slavyansk sodium plant).

    Invariant control systems already operating in the petrochemical industry, metallurgy, construction, and transportation, and also in precision measuring and information systems were considered.

    A great deal of attention was paid to papers dealing with development

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L 04700-67

ACC NR: AP6032581

and realization of invariant gyroscopic systems and control systems in flight vehicles. Development of methods for designing gyroscopic systems insensitive to disturbances and for stabilizing and controlling flight vehicles in the presence of disturbances due to wind and under various external loads was considered as the central problem.

In the course of discussions, the question of realizability of invariance conditions in automatic control systems was considered. The necessity of developing invariance theory which could be applied to new fields of automation, including the theory of finite automata, was pointed out. [ATD PRESS: 5094-F]

SUB CODE: 09, 13 / SUBM DATE: none

Card 4/4   fv

Ulanov, G. N.

USSR/Processes and Equipment for Chemical Industries--   K-2
        Control and measuring devices. Automatic regulation.

Abs Jour: Ref Zhur-Khimiya, No 3, 1957, 10652

Author : Petrov, B. N., Petrov, V. V., and Ulanov, G. N.
Inst   : Academy of Sciences USSR
Title   : The Conference on Automatic Regulation Theory

Orig Pub: Vestn. AN SSSR, 1956, No 8, 60-62

Abstract: No abstract.

Card 1/1

MALAKHOV, Yu.A., dotsent; SHOROKHOV, V.V., veter. vrach.; ULANOV, I.A., veter. vrach; TALISHEVSKAYA, M.Ye., veter. vrach.

Diagnosis and prophylaxis of leptospirosis in suckling pigs. Veterinariia 42 no.7:31-34 Jl '65.   (MIRA 18:9)

1. Moskovskiy tekhnologicheskiy institut myasnoy i molochnoy promyshlennosti.

ULANOV, Kh. K.

SA-136

(1) Leo

551.554(26)

Ulanov, Kh. K., Izmenenie skorosti vetra s vysotoi nad morem. [The change of the velocity of wind with height above the sea.] *Akademiia Nauk SSSR, Izvestiia, Ser. Geogr. i Geofiz.*, No. 3:308–314, 1939. 3 figs., 7 refs., 3 eqs. In Russian; English summary. *American Meteorological Society, Bulletin*, 23(2): 81, Feb. 1942. DLC—Wind velocity observed at heights of 30, 100, 200 and 300 cm above a raft and simultaneous humidity and temperature observations at 10 or 20, 50, 100 and 200 cm were carried out during the White Sea expedition of the State Hydrological Institute (U.S.S.R.) in the summer of 1938. Results show vertical distribution of velocities (30–300 cm above sea) not in agreement with Rossby theoretical curves, wind velocity distribution with height not dependent on stratification of temperature in layer 2–3 m above sea, vertical gradient of wind velocities increasing with increasing velocity, and vertical gradient above 3–4 m decreasing with increasing height. *Subject Headings:* 1. Micrometeorology 2. Marine meteorology 3. Wind profiles 4. White Sea.

ULANOV, KH. K.

PA 246T80

USSR/Geophysics - Oceanography   Mar/Apr 53

"Review of V.A. Snezhinskiy's Book 'Practical Oceanography,'" Kh. K. Ulanov (reviewer)

"Iz Ak Nauk SSSR, Ser Geograf" No 2, pp 59, 60

Favorable review of "Prakticheskaya Okeanografiya," published in 1951 by the Hydromet Press; 600 pp. States that author's work is a valuable contribution to the study and future use of oceans by the USSR.

246T80

ULANOV, Kh.K.

Observations of sea disturbances. Meteor. i gidrol. no.3:58-59
Mr '53.   (MLRA 8:9)

1. Rizhskaya geofizicheskaya observatoriya.
                    (Waves) (Ocean)

AVERKIYEV, M.S. [author]; ULANOV, Kh.K. [reviewer]; SAMOYLENKOV, V.S. [redaktor].

"Meteorology." M.S.Averkiev. Reviewed by Kh.K.Ulanov. Vest.Mosk.un. 8
no.5:139-140 My '53.   (MLRA 6:8)

1. Rizhskaya Geofizicheskaya observatoriya (for Ulanov).
                              (Meteorology) (Averkiev, M.S.)

SOV/10-59-5-14/25

AUTHOR: Ulanov, Kh.K. and Neglyad, K.V.

TITLE: On the Classification and Denomination of the
              Science of the Seas

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya geograficheskaya,
              1959, Nr 5, pp 98-100 (USSR)

ABSTRACT: At present there is no generally accepted classifica-
              tion and denomination of the science for the study
              of the World Ocean. The author proposes the name of
              "Oceanology" for this science. Up to now many names
              are used, such as oceanography, oceanology, sea hydro-
              logy, sea hydrometeorology, physics of the sea, or even
              (especially in foreign scientific literature) hydro-
              graphy. The author cites the following scientists who
              introduced one of the above names: Yu.M. Shokal'skiy,
              G.R. Zhukovskiy, Yu.V. Istoshin, V.S. Nazarov, A.M.
Card 1/2   Muromtsev, V.A. Snezhinskiy, N.N. Zubov, A.P. Loydis,
              L.A. Zenkevich, N.V. Malinovskiy, V.G. Kort, B.A.

On the Classification and Denomination of the Science of the Seas

Shipov, I.B. Shpindler, B.P. Orlov, A.K. Leonov, N.A. Belinskiy, M.V. Klenova, A.V. Ogiyevskiy, and B.A. Apollov. According to the author "Oceanology" is a science which studies the substance of all pheno- mena and processes occurring in oceans and seas, the regular connection among them, their reaction in specific physical and geographical conditions and the possibility of their forecast. There are 14 So- viet references.

Card 2/2

ULANOV, Kh.K.

Anomalies in water temperature in the eastern part of the central
Caspian Sea. Izv. AN Azerb. SSR. Ser. geol.-geog. nauk no.4:79-
92 '60.   (MIRA 14:1)
     (Caspian Sea—Ocean temperature)

ULANOV, Kh.K.

Estimating the heat of continental runoff. Meteor.i gidrol.
no.8:43-44 Ag 60.   (MIRA 13:8)
            (Ocean temperature) (Runoff)

ULANOV, Kh.K.

Water loss due to mechanical evaporation from the surface of the
Caspian Sea. Dokl. AN SSSR 135 no.3:584-586 N '60.   (MIRA 13:12)

1. Institut geografii Akademii nauk AzerbSSR. Predstavleno akad.
N.M.Strakhovym.
(Caspian Sea—Evaporation)

ULANOV, Kh.K.

A complete temperature cycle of the middle Caspian. Trudy
Inst. geog. AN Azerb. SSR 10:46-63 '61.   (MIRA 14:12)
                (Caspian Sea—Ocean temperature)

ULANOV, Kh. K.

Rise and flow phenomena and the water temperature anomaly at the
east coast of the middle Caspian. Okeanologiia 2 no.4:614-626
'62.   (MIRA 15:7)

(Caspian Sea--Temperature)

ULANOV, Kh.K.

> Water exchange between the central and southern parts of the
> Caspian Sea. Okeanologiia 3 no.3:431-440 '63.   (MIRA 16:8)
>
> 1. Institut geografii AN Azerbaydzhanskoy SSR, Baku.
>   (Caspian Sea—Hydrology)

ULANOV, Kh.K.

Level increment and the water budget of the Caspian Sea. Dokl.
AN SSSR 157 no.1:99-100 Jl '64   (MIRA 17:8)

1. Predstavleno akademikom N.M.Strakhovym

ULANOV, Kh.K.

Stream flow in the Caspian Sea in 1946-1961. Izv.AN Azerb.SSR.
Ser.geol.-geog.nauk no.1:102-109 '65.

(MIRA 18:8)

ULANOV, Kh.K.

Subsurface drainage into the Caspian Sea and the seepage of its
water to the bottom and coasts. Dokl. AN SSSR 162 no.1:166-168
My '65.   (MIRA 18:5)

1. Submitted December 22, 1964.

ULANOV, L., kapitan

People of a heroic deed. Starsh.-serzh. no.10:34 O '61.
(MIRA 15:2)
(Russia--Relations (Military) with East Germany)

IVANOV, B.; ULANOV, M.

Mandolin quintet played on one instrument. IUn. tekh. 5 no. 12:65-
63 D '60.   (MIRA 14:1)
            (Musical instruments, Electronic)

PROCESSES AND PROPERTIES INDEX

5

Photogravure film. V. D. Potapov and M. S. Ulanov.
Russ. 57,603, July 31, 1940. The film, impregnated with
a glue compn. contg. diphenylamine, is sensitized with
Na₂CrO₄ and an aq.-alc. soln. of Na benzoate. The
image is developed with an aq.-alc. soln. of Ca(NO₃)₂ with
the addn. of HNO₃, washed with hot water and treated
with an aq.-alc. soln. of a mordant wood dye that unites
with the Cr left in the film.

A S A - 1 L A   METALLURGICAL LITERATURE CLASSIFICATION

ULANOV, N.A.

Innovators of the Petropavlovsk Leather Factory. Kozh.-obuv.prom.
3 no.11:36-37 N '61.   (MIRA 15:1)
        (Kazakhstan--Leather industry--Technological innovations)

ULANOV, N.N.; DARIYEV, A.D.

Potentiometric determinion of the molecular weights of organic salts
and acids. Krat.soob. BKNII no.3:56-60 '62.
(Potentiometric analysis) (Molecular weights) (Organic compounds)
                                                    (MIRA 16:5)

UL'ANOV, P.L.

Divergence of Fourier's series. Usp.mat.nauk 12 no.3:75-132
My-Je '57.
(MIRA 10:10)
(Fourier's series)

ULANOV, R.N., inzhener; FOKHT, L.G., inzhener.

Self-propelled carts for construction work. Nov.tekh.i pered.op.
v stroi. 18 no.6:14-16 Je '56.   (MLRA 9:8)
          (Industrial power trucks)

ULANOV, R.

MARDANOV, V.; ULANOV

Univeral machine for the apartment house managements. Zhil.-kom. khoz.
7 no.5:12-13 '57.
(MIRA 10:6)

1. Nachal'nik tekhnicheskogo otdela Leningradskogo zhilishohnogo up-
ravleniya (for Mardanov). 2. Starshiy inzhener nauchno-issledovatel'
skogo instituta organizatsii i mekhanizatsii stroitel'stva. (for
Ulanov).

(Motortrucks)

ULANOV, R., konstruktor.

"Motorized ants". Za rul. 15 no.5:19 My '57.   (MLRA 10:6)
                    (Motorcycles)

MARDANOV, V.V., inzh.; ULANOV, R.N., inzh.

Mechanization of cleaning of apartment-house premises in Leningrad. Gor.
khoz.Mosk. 31 no.5:27-29 My '57.   (MIRA 12:3)
          (Leningrad--Street cleaning machinery)

ULANOV, Rem Nikolayevich; LEVCHENKO, Ya.V., inzh., red.; VASIL'YEV,
Yu.A., red. izd-va; GVIRTS, V.L., tekhn. red.

[Increasing the mobility of the "Pioneer" jib crane] Povy-
shenie mobil'nosti strelovykh kranov tipa "Pioner." Leningrad,
1961. 8 p. (Leningr. Dom nauchno-tekhnicheskoi propagandy. Opyt
novatorov. Seriia: Stroitel'naia promyshlennost', no.20)

(MIRA 14:12)

(Cranes, derricks, etc.)

LANTSOV, Vladimir Anatol'yevich; ULANOV, Rem Nikolayevich; LEVCHENKO,
L.V., red.; FOMICHEV, A.G., red.izd-va; BOL'SHAKOV, V.A.,
tekhn. red.

[Hiched construction cranes]Pritsepnye stroitel'nye krany. Le-
ningrad, 1961. 20 p. (Leningradskii dom nauchno-tekhnicheskoi
propagandy. Obmen peredovym opytom. Seriia: Stroitel'naia pro-
myshlennost', no.28)   (MIRA 16:3)
                  (Cranes, derricks, etc.)

ULANOV, R.N.; LANTSOV, V.A., starshiy nauchnyy sotr.; AL'PEROVICH, A.I.;
PFUL', B.Ya., inzh., red.; KODABASHEVA, R.S., inzh., red.; YEFRE-
MENKO, V.P., inzh., red.

[Hoists used in construction] Stroitel'nye pod"emniki; sbornik opi-
sanii ratsionalizatorskikh predlozhenii. Moskva, Gos. izd-vo lit-
ry po stroit., arkhit. i stroit. materialam, 1961.   34 p.
                                                    (MIRA 14:11)

1. Akademiya stroitel'stva i arkhitektury SSSR. Institut organizatsii,
mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu. Byuro tekhniche-
skoy informatsii. 2. Glavnyy konstruktor liteyno-mekhanichskogo zavoda
Leningradskogo upravleniya zhilishchnym khozyaystvom (for Ulanov).
3. Leningradskiy nauchno-issledovatel'skiy institut Akademii kommunal'-
nogo khozyaystva im. K.D.Pamfilova (for Lantsov). 4. Glavnyy inzhener
TSentral'nogo remontno-mekhanicheskogo zavoda Ispolnitel'nogo komiteta
Moskovskogo gorodskogo soveta deputatov trudyashchikhsya (for Al'perovich).
                         (Hoisting machinery)

ULANOV, R.

TUM-59 hauling and street cleaning machine. Zhil.-kom.
khoz. 11 no.8:29 Ag '61.   (MIRA 14:9)

1. Glavnyy konstruktor liteyno-mekhanicheskogo zavoda Len-
zhilupravleniya, Leningrad.
                    (Street cleaning machinery)

ULANOV, R.N., inzh.; KASITSYNA, K.N., inzh., red.

[Motor trolleys and tractor trucks for transporting build-
ing materials; practices of the Casting and Machine Plant
of the Housing Administration of Leningrad City Executive
Committee] Mototachki i tiagachi dlia transportirovaniia
stroitel'nykh materialov; iz opyta Liteino-mekhanicheskogo
zavoda Zhilishchnogo upravleniia Leningradskogo rispolkoma.
Moskva, Gosstroiizdat, 1962. 14 p.   (MIRA 17:4)

1. Moscow. Nauchno-issledovatel'skiy institut organizatsii,
mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu.
2. Glavnyy konstruktor Liteyno-mekhanicheskogo zavodazhi-
lishnogo upravleniya Leningradskogo gorodskogo ispolnitel'-
nogo komiteta (for Ulanov).

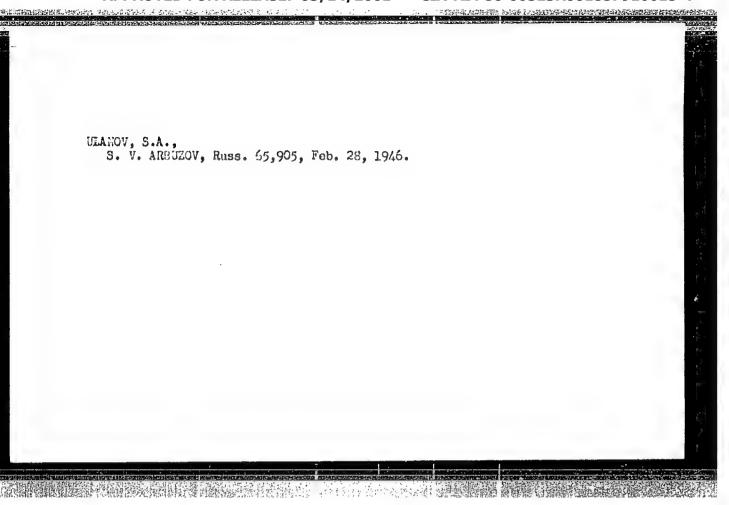ULANOV, Rem Nikolayevich; LEVCHENKO, Ya.V., red.; KLOPOVA, T.B., red. izd-va; BELOGUROVA, I.A., tekhn. red.

[Selection and use of various self-propelled chassis]Vybor i ispol'zovanie razlichnykh samokhodnykh shassi. Leningrad, 1962. 20 p. (Leningradskii dom nauchno-tekhnicheskoi propagandy. Obmen peredovym opytom. Seriia: Stroitel'naia promyshlenost', no.9)   (MIRA 15:10)
                        (Motor vehicles)

ULANOV, R.N.

Small snowplows. Gor. khoz. Mosk. 36 no.10:29-31 O '62.
(MIRA 15:12)

1. Zhilishchnoye upravleniye ispolnitel'nogo komiteta
Leningradskogo gorodskogo soveta.
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ULANOV, S.A.,
   S. V. ARBUZOV, Russ. 65,905, Feb. 28, 1946.

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Utilization of skins in manufacturing Russian leather. Leg.prom.
18 no.11:16-17 N '58.
                        (Tanning)   (MIRA 11:12)

CHERNOV, N.V., doktor tekhn. nauk, prof.; SHESTAKOVA, I.S., prof., doktor
tekhn. nauk; GOLOVTEYEVA, A.A., kand. tekhn. nauk, dotsent;
ULANOV, S.A., inzh.

Effect of the bouquet and viscosity of the tanning solutions on
tanning kinetics. Nauch. trudy MTILP no.24:21-29 '62.
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1. Kafedra tekhnologii kozhi i mekha Moskovskogo tekhnologi-
cheskogo instituta legkoy promyshlennosti.
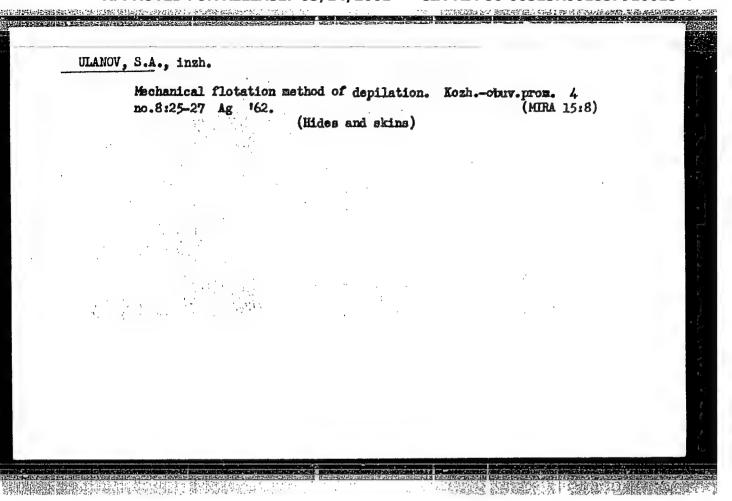(Tanning)

ULANOV, S.A.

Apparatuses and boiling methods for the manufacture of tanning
extracts. Kozh.-obuv.prom. 3 no.1:23-25 Ja '61.   (MIRA 14:5)
(Tanning materials)

SHAPIRO, A.Ye., kand.tekhn.nauk; ULANOV, S.A., inzh.

Depilation without painting in the manufacture of chrome
leather from hides. Kozh.-obuv.prom. 4 no.3:29-32 Mr '62.
(MIRA 15:5)

(Leather)

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    Mechanical flotation method of depilation. Kozh.-obuv.prom. 4
no.8:25-27 Ag '62.   (MIRA 15:8)
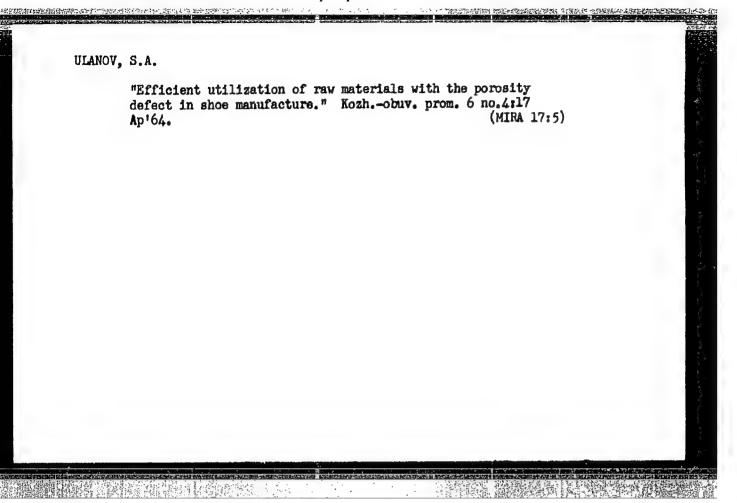   (Hides and skins)

ULANOV, S. A., inzh.; CHERNOV, N. V., doktor tekhn. nauk, prof.;
SHESTAKOVA, I. S., doktor tekhn. nauk, prof.

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31-34 Ag '64.   (MIRA 17:10)

ULANOV V

MARDANOV, V.; ULANOV, V.

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1.Nachal'nik tekhn.otdela Lenzhilupravleniya (for Mardanov)
2.Glavnyy konstruktor tsekha novoy tekhniki Liteyno-mekhanicheskogo
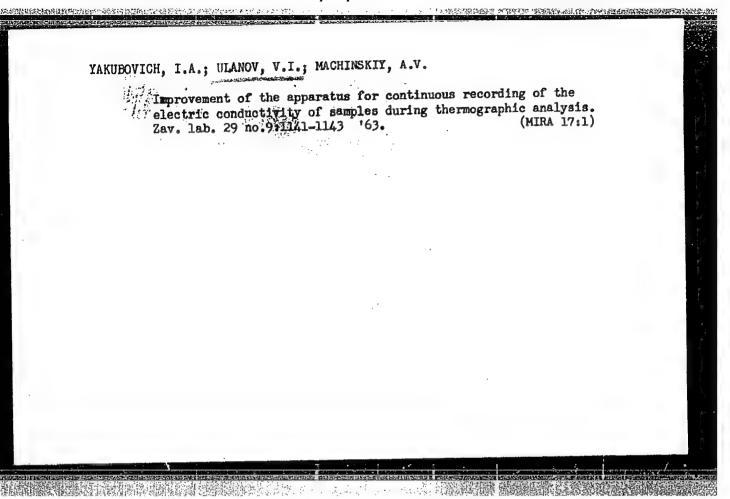zavoda Lenzhilupravleniya (for Ulanov)
(Street cleaning)

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Our achievements in prevention of agricultural accidents. Fel'd. i akush. no.3:46-48 Mr '55. (MIRA 8:5)

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(WOUNDS AND INJURIES,
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USSR/Biology - Plant pathology

Card 1/1   Pub. 22 - 40/47

Authors   : Ryzhkov, V. L.; Kabachnik, M. I., Memb. Corresp. of Acad. of Sc. USSR;
                  Tarasevich, L. M.; Medved', T. Ya.; Zeytlenok, N. A.; Marchenko, N. K.;
                  Vagzhanova, V. A.; Ulanova, E. F.; and Cheburkina, N. V.

Title   : Biological activity of alpha-aminophosphinic acids

Periodical   : Dok. AN SSSR 98/5, 849-852, Oct 11, 1954

Abstract   : The biological activity of alpha-aminophosphinic acids (toxic when in
                  large concentrations), is discussed. The biological activity of these
                  acids is best expressed in the inhibition of virus multiplication in
                  the mosaic disease of tobacco. The effect of these acids and glycol
                  on the titer of influenza virus in growing chicken embryos was investi-
                  gated and the results are described. Eleven references: 7-USSR; 2-USA;
                  1-French and 1-German (1930-1953). Tables.

Institution   : Acad. of Sc. USSR, Institute of Elementary-Organic Compounds and the
                  Academy of Medical Sciences USSR, The D. I. Ivanov Institute of Virus-
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Submitted   : July 7, 1954

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SO: Sum. No. 704, 2 Nov 55 - Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (16).